MEAN LAKE LEVELS DURING JANUARY, 1919.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Feb. 4, 1919.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during January, 1919:	*Feet.*	*Feet.*	*Feet.*	*Feet.*
Above mean sea level at New York	602.26	580.80	572.19	246.09
Above or below—				
Mean stage of December, 1918	−0.16	−0.25	−0.02	+0.20
Mean stage of January, 1918	+0.35	+0.03	+0.30	+0.02
Average stage for January, last 10 years	+0.27	−0.95	+0.63	+0.81
Highest recorded January stage	−0.52	−1.87	−1.36	−1.51
Lowest recorded January stage	+1.38	+1.72	+1.23	+2.29
Average relation of the January level to—				
December level	−0.3	−0.2	−0.1	−0.1
February level	+0.2	±0.0	±0.0	−0.1

EFFECT OF WEATHER ON CROPS, JANUARY, 1919.

By J. WARREN SMITH, Meteorologist.

[Dated: Weather Bureau, Washington, Mar. 3, 1919.]

Plowing.—The mild and comparatively dry weather during the month permitted of much more plowing and other outdoor work than is usual for January. The preparation of the soil for planting spring crops was hindered, however, in much of the Gulf States by wet soil and this work at the close of the month was backward for the season.

Due to the warm weather, vegetation made considerable growth in the South and on the north Pacific coast, and much more than is usual for this month in the central districts. Cool nights and deficient moisture retarded growth in California, however, and the cold weather at the beginning of the month caused some damage in that State and also in the Gulf districts.

Wheat.—There was some damage to winter wheat by low temperatures the first of the month, particularly in the Southeast and on the north Pacific coast, but on the whole the mild weather after the first decade was decidedly favorable for winter grains, and wheat especially, made unusual growth. At the close of the month winter grains were in an unusually good condition.

Truck crops.—After the first few days of the month, when early truck crops were considerably damaged in the South by cold weather, conditions were decidedly favorable for winter truck, but wet soil delayed the planting of spring truck in southern districts.

Live stock.—Conditions were generally favorable for meadows, pastures, and live stock, but heavy snow which caused considerable loss of stock covered the ground in western Kansas, northern New Mexico, and the Texas Panhandle during the first of the month.

Fruit.—In the first few days of January, frost severely damaged lemons and oranges in California, and a large number of Satsuma orange trees were defoliated in Alabama; otherwise little damage to fruit was reported although some local injury was done to fruit buds in Colorado and Missouri.

DESCRIPTION OF TABLES AND CHARTS.

Table I gives the data ordinarily needed for climatological studies for about 176 Weather Bureau stations making simultaneous observations at 8 a. m. and 8 p. m. daily, 75th Meridian time, and for about 30 others making only one observation. The altitudes of the instruments above ground are also given.

Table II gives a record of precipitation, the intensity of which at some period of the storm's continuance equaled or exceeded the following rates:

Duration (minutes)	5	10	15	20	25	30	35	40	45	50	60
Rates per hour (inches)	3.00	1.80	1.40	1.20	1.08	1.00	0.94	0.90	0.87	0.84	0.80

It is impracticable to make this table sufficiently wide to accommodate on one line the record of accumulated falls that continue at an excessive rate for several hours. In this case *the record is broken at the end of each 50 minutes*, the accumulated amounts being recorded on successive lines until the excessive rate ends. In cases where no storm of sufficient intensity to entitle it to a place in the full table has occurred, the greatest precipitation of any single storm has been given; also the greatest hourly fall during that storm.

The tipping-bucket mechanism is *dismounted* and removed when there is danger of snow or water freezing in the same. Table II records this condition by entering an asterisk (*).

Table III gives, for about 30 stations of the Canadian Meteorological Service, the means of pressure and temperature, total precipitation and depth of snowfall, and the respective departures from normal values except in the case of snowfall. The sea-level pressures have been computed at Washington by the method employed for reducing United States observations and described by Prof. F. H. Bigelow in this REVIEW, January, 1902, pages 13–16; the altitudes are those furnished us on January 1, 1916.

Chart I.—*Hydrographs* for several of the principal rivers of the United States.

Chart II.—*Tracks of centers of* HIGH areas; and

Chart III.—*Tracks of centers* of LOW areas. The Roman numerals show the chronological order of the centers. The figures within the circles show the days of the month; the letters *a* and *p* indicate, respectively, the observations at 8 a. m. and 8 p. m., 75th Meridian time. Within each circle is also given (Chart II) the last three figures of the highest barometric reading, or (Chart III) the lowest reading reported at or near the center at that time, and in both cases as reduced to sea-level and standard gravity.

Chart IV.—*Temperature departures.* This chart presents the departures of the monthly mean surface temperatures from the monthly normals. The normals used in computing the departures were computed for a period of 33 years (1873 to 1905) and are published in Weather Bureau Bulletin R, Washington, 1908. Stations whose records were too short to justify the preparation of normals in 1908, have been provided with normals as adequate records became available, and all have been reduced to the 33-year interval 1873–1905. The shaded portions of the chart indicate areas of positive departures and unshaded portions indicate areas of negative departures. Generalized lines connect places having approximately equal departures of like sign. This chart of monthly surface temperature departures in the United States was first published in the MONTHLY WEATHER REVIEW for July, 1909.

Chart V.—*Total precipitation.* The scale of shades showing the depth is given on the chart. Where the monthly amounts are too small to justify shading and over sections of the country where stations are too widely separated or the topography is too diversified to warrant reasonable accuracy in shading, the actual depths are given for a limited number of representative stations. Amounts less than 0.005 inch are indicated by the letter T, and no precipitation by 0.